THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellant(s):	Ambrogi, et al.
Appl. No.:	10/598,444
Conf. No.:	5263
Filed:	November 13, 2006
Title:	FROZEN AERATED CONFECTION AND METHOD OF PRODUCTION
Art Unit:	1781
Examiner:	Jyoti Chawla
Docket No.:	3712036-00750

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPELLANTS' APPEAL BRIEF

Sir:

Appellants submit this Appeal Brief in support of the Notice of Appeal filed on January 12, 2012. This Appeal is taken from the Final Rejection in the Office Action dated October 26, 2011.

I. REAL PARTIES IN INTEREST

The real party in interest for the above-identified patent application on Appeal is Nestec S.A., by virtue of an Assignment recorded on January 28, 2009 at reel 019388, frames 0341-0346, in the United States Patent and Trademark Office.

II. RELATED APPEALS AND INTERFERENCES

Appellants' legal representative and the Assignees of this patent application do not know of any prior or pending appeals, interferences or judicial proceedings that may be related to, directly affect or be directly affected by or have a bearing on the Board's decision with respect to the above-identified Appeal.

III. STATUS OF CLAIMS

Claims 1-17 are rejected in this application. Therefore, Claims 1-17 are being appealed in this Brief. A copy of the appealed claims is included in the Claims Appendix.

IV. STATUS OF AMENDMENTS

A Non-Final Office Action was mailed on April 5, 2011 rejecting the claims as obvious under 35 U.S.C. §103. Appellants responded to the Non-Final Office Action on July 22, 2011 arguing against the obviousness rejections without amending the claims. A Final Office Action was mailed on October 26, 2011 maintaining the obviousness rejections. Appellants filed a Notice of Appeal on January 12, 2012 in response to the Final Office Action.

V. SUMMARY OF CLAIMED SUBJECT MATTER

A summary of the claimed subject matter by way of reference to the specification and/or figures for each of the independent claims is provided as follows:

Independent Claim 1 recites an aerated frozen confection comprising: 50 to 70% by weight water, 5 to 20% by weight fat, 1% by weight or more polyol (page 2, lines 15-17; page 2, lines 31-36), 0.5 to 7% by weight vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof (page 2, line 18-19; page 3, lines 3-9), and sugars, milk proteins, hydrocolloids and emulsifiers (page 2, lines 20-21; page 2, lines 23-29) and the confection having an overrun of 20 to 200% (page 2, lines 20-21), the aerated frozen confection being resistant to shrinkage and soft down to a storage temperature of -18 °C or less (page 2, lines 20-21; page 2, lines 23-29; page 4, lines 16-34).

Independent Claim 7 recites a method for producing an aerated frozen confection (page 3, lines 29-36), the method comprising: premixing vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof (page 3, lines 29-36), and adding the mixture to an agitated mixing tank along with fat, polyol, sugar, milk, protein, hydrocolloids, and emulsifiers (page 3, lines 29-36), subjecting the mix to a heating step to hydrate the hydrocolloids (page 3, lines 29-36), pasteurizing the heated mix (page 3, lines 29-36), homogenizing the pasteurized mix (page 3, lines 29-36), cooling, ageing and freezing the mix whist aerating (page 3, lines 29-36), and packaging and hardening the mix to produce the aerated frozen confection (page 4, line 1), the aerated frozen confection being resistant to shrinkage and soft down to a storage temperature of -18 °C or less (page 2, lines 20-21; page 2, lines 23-29; page 4, lines 16-34).

Independent Claim 11 recites a method of producing confection products (page 4, lines 7-10), the method comprising: using a vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof (page 2, line 18-19; page 3, lines 3-9), in combination with a polyol to produce an ice confection that contains 5 to 20% by weight fat (page 2, lines 15-17; page 2, lines 31-36), the ice confection being resistant to shrinkage and soft down to a storage temperature of -18 °C or less (page 2, lines 20-21; page 2, lines 23-29; page 4, lines 16-34).

Independent Claim 12 recites an aerated frozen confection comprising: 50 to 70% by weight water, 5 to 20% by weight fat, at least 1% or more glycerol (page 2, lines 15-17; page 2, lines 31-36; page 3, line 1), 0.5 to 7% by weight vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof (page 2, line 18-19; page 3, lines 3-9), and sugars, milk proteins, hydrocolloids and emulsifiers (page 2, lines 20-21; page 2, lines 23-29), the aerated frozen confection being resistant to shrinkage and soft down to a storage temperature of -18 ^{o}C or less (page 2, lines 20-21; page 2, lines 23-29; page 4, lines 16-34).

Although specification citations are given in accordance with 37 C.F.R. §1.192(c), these reference numerals and citations are merely examples of support in the specification for the terms used in this section of the Brief. There is no intention to suggest in any way that the terms of the claims are limited to the examples in the specification. As demonstrated by the references numerals and citations, the claims are fully supported by the specification as required by law. However, it is improper under the law to read limitations from the specification into the claims. Pointing out specification support for the claim terminology in accordance with Rule 1.192(c) does not in any way limit the scope of the claims to those examples from which they find support. Nor does this exercise provide a mechanism for circumventing the law precluding reading limitations into the claims from the specification. In short, the reference numerals and specification citations are not to be construed as claim limitations or in any way used to limit the scope of the claims.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 1-6, 12 and 17 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,552,773 to Kahn et al. ("*Kahn*") in view of U.S. Patent No. 5,127,956 to Hansen et al. ("*Hansen*") and GB 1508437 to Dea et al. ("*Dea*").

2. Claims 7-11 and 13-16 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Kahn* in view of *Hansen* and *Dea* and further in view of WO 01/06865 to Vaghela et al. ("*Vaghela*").

VII. ARGUMENTS

A. LEGAL STANDARDS

Obviousness under 35 U.S.C. §103

The Federal Circuit has held that the legal basis for a determination of obviousness under 35 U.S.C. § 103 is:

> whether the claimed invention as a whole would have been obvious to a person of ordinary skill in the art at the time the invention was made…The foundational facts for the prima facie case of obviousness are: (1) the scope and content of the prior art; (2) the difference between the prior art and the claimed invention; and (3) the level of ordinary skill in the art…Moreover, objective indicia such as commercial success and long felt need are relevant to the determination of obviousness…Thus, each obviousness determination rests on its own facts.

In re Mayne, 41 U.S.P.Q. 2d 1451, 1453 (Fed. Cir. 1997).

In making this determination, the Examiner has the initial burden of proving a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q. 2d 1955, 1956 (Fed. Cir. 1993). This burden may only be overcome "by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings." *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). "If the examination at the initial stage does not produce a prima facie case of unpatentability, then without more the applicant is entitled to grant of the patent." *In re Oetiker*, 24 U.S.P.Q. 2d 1443, 1444 (Fed. Cir. 1992).

Moreover, the Examiner must provide explicit reasons why the claimed invention is obvious in view of the prior art. The Supreme Court has emphasized that when formulating a rejection under 35 U.S.C. § 103(a) based upon a combination of prior art elements it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed. *KSR v. Teleflex*, 127 S. Ct. 1727 (2007).

Of course, references must be considered as a whole and those portions teaching against or away from the claimed invention must be considered. *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve Inc.*, 796 F.2d 443 (Fed. Cir. 1986). "A prior art reference may be considered to teach away when a person of ordinary skill, upon reading the reference would be discouraged

from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the Applicant." *Monarch Knitting Mach. Corp. v. Fukuhara Indus. Trading Co., Ltd.*, 139 F.3d 1009 (Fed. Cir. 1998) (quoting *In re Gurley*, 27 F.3d 551 (Fed. Cir. 1994)).

B. THE CLAIMED INVENTION

There are four independent claims on appeal: Claims 1, 7 and 11-12. Independent Claim 1 is directed to an aerated frozen confection comprising 50 to 70% by weight water, 5 to 20% by weight fat, 1% by weight or more polyol, 0.5 to 7% by weight vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof, and sugars, milk proteins, hydrocolloids and emulsifiers. The confection has an overrun of 20 to 200%. The aerated frozen confection is resistant to shrinkage and soft down to a storage temperature of -18 °C or less.

Independent Claim 7 is directed to a method for producing an aerated frozen confection. The method comprises premixing vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof. The method further comprises adding the mixture to an agitated mixing tank along with fat, polyol, sugar, milk, protein, hydrocolloids, and emulsifiers, subjecting the mix to a heating step to hydrate the hydrocolloids, pasteurizing the heated mix, homogenizing the pasteurized mix, cooling, ageing and freezing the mix whist aerating, and packaging and hardening the mix to produce the aerated frozen confection. The aerated frozen confection is resistant to shrinkage and soft down to a storage temperature of -18 °C or less.

Independent Claim 11 recites a method of producing confection products. The method comprises using a vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof, in combination with a polyol to produce an ice confection that contains 5 to 20% by weight fat. The ice confection is resistant to shrinkage and soft down to a storage temperature of -18 °C or less.

Independent Claim 12 recites an aerated frozen confection comprising 50 to 70% by weight water, 5 to 20% by weight fat, at least 1% or more glycerol, 0.5 to 7% by weight vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof, and sugars, milk proteins, hydrocolloids and emulsifiers. The

aerated frozen confection is resistant to shrinkage and soft down to a storage temperature of -18 °C or less.

There are problems in achieving stability of a very soft ice cream packed in cups or bulk containers. Inside the ice cream, there are ice crystals and air bubbles dispersed in a liquid phase. Softness generally is obtained by reducing the quantity of ice formed. This is mainly obtained by selecting the type and the amount of sugars and by adding salt or alcohol in the ice cream mix. There are limitations with using the low molecular components mentioned above for taste reasons. Thus, if further increase of softness is targeted, the only possibility is to use polyols, e.g., glycerol, which increases the risk of shrinkage. Shrinkage is a serious problem that makes the product unacceptable to the consumer – the volume of the ice cream shrinks, leaving a space either at the top or at the side of the package, which then appears unfull.

Unfortunately, the problem of instability increases with the volume of the liquid phase. Without willing to be bound by theory, when the volume of the liquid phase raises, the air bubbles have a tendency to go up, which may lead to the formation of a layer of ice at the bottom of the container. This default is called layering.

Appellants have surprisingly found a way to provide increased stabilization of soft serve ice cream type of products for home use with high resistance to shrinkage and layering. For example, Appellants surprisingly found that combining a polyol with vegetable fibers selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof in a single aerated frozen confection provides a strong effect on preventing shrinkage and ice layering in the aerated frozen confection. See specification, Examples.

C. THE REJECTION OF CLAIMS 1-6, 12 AND 17 UNDER 35 U.S.C. §103(A) TO *KAHN, HANSEN* AND *DEA* SHOULD BE REVERSED BECAUSE THE EXAMINER HAS FAILED TO ESTABLISH A *PRIMA FACIE* CASE OF OBVIOUSNESS

1. *Kahn, Hansen* and *Dea* alone or in combination fail to disclose or suggest each and every element of independent Claims 1 and 12.

Independent Claims 1 and 12 recite, in part, an aerated frozen confection that is resistant to shrinkage and soft down to a storage temperature of -18 °C or less. Independent Claims 1 and

12 further recite, in part, an aerated frozen confection comprising a polyol and 0.5 to 7% by weight vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof.

Kahn, *Hansen* and *Dea* alone or in combination fail to disclose or suggest each and every element of independent Claims 1 and 12. Specifically, *Kahn*, *Hansen* and *Dea* alone or in combination fail to disclose or suggest an aerated frozen confection being resistant to shrinkage and soft down to a storage temperature of -18 °C or less as required by independent Claims 1 and 12. *Kahn*, *Hansen* and *Dea* alone or in combination also fail to disclose or suggest a polyol and 0.5 to 7% by weight vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof in a single aerated frozen confection as required by independent Claims 1 and 12.

Kahn discloses a food product that maintains a stable volume when stored for prolonged periods at refrigerator temperatures as well as at freezer temperatures. See, *Kahn*, column 1, lines 37-41. Nowhere does *Kahn* even disclose the use of oat fibers or fibers extracted from chicory taproots for any purpose in his food product, especially in combination with a polyol for providing a beneficial effect to the food product at freezing temperatures. Moreover, *Kahn* fails to provide any measure of indication of the evolution of the volume of the food products over time, in particular when submitted to heat shocks.

Hansen discloses preparing a mixture of fructose, glucose and oligosaccharides for use as a filler bulking agent with a sweet taste. See, *Hansen*, Abstract. *Hansen* fails to disclose or suggest the use of any polyol, especially in combination with oat fibers or fibers extracted from chicory taproots, in its mixture. Although ice creams are mentioned in a general laundry list of potential applications for using the mixture object of *Hansen*, soft ice cream is not mentioned. Indeed, the specific problems of spoonability and shrinkage in soft ice cream are not addressed by *Hansen*.

Dea discloses a spoonable frozen confection using a freezing point depressant like glycerol and containing a stabilizer. See, *Dea*, page 1, right column, paragraph 2. Nowhere does *Dea* even disclose the use of oat fibers or fibers extracted from chicory taproots for any purpose for the spoonable frozen confection, especially in combination with a polyol. In addition, the specific problem of shrinkage in soft ice cream is not addressed by *Dea*. This fails to address or

solve the problem of the present claims, which is shrinkage of soft frozen confection. The problem is not even mentioned by *Dea*.

For at least the reasons discussed above, *Kahn*, *Hansen* and *Dea* fail to teach or suggest each and every element of independent Claims 1 and 12, along with any of the claims that depend from Claims 1 and 12. Moreover, *Kahn*, *Hansen* and *Dea* fail to teach, suggest or even recognize the advantages and benefits of using a vegetable fiber and a polyol to provide an improved aerated frozen confection in accordance with the present claims.

2. The skilled artisan would have no reason to combine the cited references to arrive at the claimed invention because the cited references teach away from each other.

Appellants respectfully submit that the skilled artisan would have no reason to combine the cited references in an attempt to arrive at the claimed invention because they teach away from each other. References must be considered as a whole and those portions teaching against or away from the claimed invention must be considered.

Kahn discloses whipped products that are soft and spoonable like soft ice-cream at 0 °F. The products (whipped milk shake or ice cream) can also be stored at refrigerator temperatures of about 32 °F to about 42 °F for several days and then consumed with a straw. The whipped products disclosed contain non-fat milk solids, water, sugar, fat and minor effective amounts of flavoring, emulsifier and stabilizers including a polysaccharide stabilizer. *Kahn* teaches that part of the sugar component is preferably replaced by a polyhydric alcohol (e.g., glycerol) to decrease the sweetness of the whipped products and help it become quickly flowable when exposed to ambient temperatures. See, *Kahn*, column 2. Stabilizer components include polysaccharide stabilizers, preferably CMC in combination with carrageenan. See, *Kahn*, column 4. Gums are also described as possible stabilizers.

Kahn is silent about the use of vegetable fibers consisting of oat fibers, fibers extracted from chicory taproots and combination thereof. The Examiner states that it would have been obvious to one ordinary skill in the art at the time of the invention to modify *Kahn* in view of *Hansen* and include a chicory based oligosaccharide as a stabilizer in the whipped products of *Kahn*. Appellants respectfully disagree.

Hansen discloses the preparation of a mixture of fructose, glucose and oligosaccharides from roots of chicory and their use as a filler bulking agent with a sweet taste. More particularly, *Hansen* discloses the use of the mixture in products where a large amount of sweetener is desirable with regard to body and texture. Appellants respectfully submit that the described mixture is not said to be useful as a stabilizer. Therefore, a skilled person in the art viewing *Kahn* and looking for an alternative stabilizer than those described in *Kahn* would have absolutely no reason to believe that the mixture described by *Hansen* could be used to replace the stabilizers described by *Kahn*.

According to *Kahn*, the use of a polyhydric alcohol is recommended to replace part of the sugar content in order to achieve a desirable reduction in the sweetness of *Kahn's* whipped products. See, *Kahn*, column 6, line 63. In other words, the skilled artisan viewing *Kahn* and looking to reduce the sweetness of its whipped product would have no reason at all and be even taught away from using the mixture disclosed by *Hansen*, which has a sweetening effect and no described stabilizing effect. Further, the skilled artisan confronted with the problem of improving the stability of the whipped products described by *Kahn* would have absolutely no reason to replace the stabilizers described by *Kahn*, namely polysaccharides, with a filler bulking agent having a sweet taste as taught by *Hansen*. As such, a skilled person in the art would have no reason to look at the teaching of *Hansen* when trying to solve a problem of shrinkage in soft ice cream. Additionally, even if the skilled artisan were tempted to do so, he would have no reasonable expectation to achieve the results of resistance of shrinkage of the present claims.

What the Examiner has done is to rely on hindsight reconstruction of the claimed invention. Appellants respectfully submit that it is only with a hindsight reconstruction of Appellants' claimed invention that the Examiner is able to even attempt to piece together the teachings of the prior art so that the claimed invention is allegedly rendered obvious. Instead, the claims must be viewed as a whole as defined by the claimed invention and not dissected into discrete elements to be analyzed in isolation. *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983); *In re Ochiai*, 71 F.3d 1565, 1572, 37 USPQ2d 1127, 1133 (Fed. Cir. 1995). One should not use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d at 1075. (Fed. Cir. 1988).

3. The Examiner has failed to rebut Appellant's evidence of unexpected result

"One way for a patent applicant to rebut a prima facie case of obviousness is to make a showing of 'unexpected results,' i.e., to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected." *In re Soni*, 54 F.3d 746, 750 (Fed. Cir. 1995). Appellants have surprisingly found that combining a polyol and a vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof in a single aerated frozen confection provides the aerated confection with high resistance to shrinkage and layering.

More specifically, Applicants have surprisingly found a way to provide increased stabilization of soft serve ice cream type of products for home use with high resistance to shrinkage and layering. For example, Applicants surprisingly found that a polyol (e.g., glycerol) in combination with vegetable fibers selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof have a strong effect on preventing shrinkage and ice layering in aerated frozen confections. See specification, Examples.

Appellants have found that the specific selection of vegetable fiber, associated with the presence of a polyol, has a strong effect in preventing shrinkage and ice layering of soft ice cream. As defined in the specification, shrinkage is the partial or total loss of the air incorporated in the ice cream. See, specification, page 4, lines 25-34. Shrinkage typically occurs during ice cream storage, in particular when the ice cream is exposed to high temperature and/or temperature oscillation. Due to shrinkage the ice cream volume is reduced, the shape can also be affected and, over determinate level of shrinkage, the products become unmarketable. A good resistance to shrinkage is therefore one of the key properties of the ice cream. See, specification, page 4, lines 25-34.

The capability of different products to keep their volumes over commercial shelf-life (that means to resist shrinkage) can be compared by application of accelerated heat shock cycles to be run in thermostatic chambers. For example, the shrinkage sensitivity of products according to the present claims have been measured with a very specific heat shock cycle described in the application in the specification at page 5, lines 1-7. The test included 18 phases of temperature changes between -20°C and -4°C. As the test is comparative, the cycle was repeated, with a loop

from phase 18 to phase 1, until one of the involved samples started to shrink. With this procedure 1 cycle means 1 repetition of phase 1 to 18 (approx. 70 hours). The products of the present disclosure described in Table 1 (Examples 1 to 4) were subjected to 4 cycles of heat shock and showed no apparent shrinkage – comparable to a regular ice cream.

Further, in the following table, the pictures of three different ice cream compositions after 4 cycles of heat shock are shown. The left-most picture is a reference ice cream having (i) a stabilizer system including locust bean gum, guar gum and carrageenan. The reference ice cream was not spoonable at -18ºC, but was resistant to shrinkage (no volume loss) after heat shock. The right-most picture is an ice cream having (i) a stabilizer system including locust bean gum, guar gum and carrageenan, and (ii) a polyol (i.e., glycerol). The ice cream with the polyol was spoonable at -18ºC, but suffered from severe shrinkage when submitted to heat shock cycle. The center picture is an ice cream having (i) a stabilizer system including locust bean gum, guar gum and carrageenan, (ii) a polyol (i.e., glycerol), and (iii) a vegetable fiber from chicory taproots according to the claimed invention. The ice cream with the polyol and the vegetable fiber was spoonable at -18ºC and did not suffer from shrinkage such that the ice cream maintained its volume even after heat shock cycle. It is evident that the ice cream where polyols were added to increase softness has lost volume and shows an unacceptable shrinkage; while the normal, reference ice cream still keeps its volume. When polyols are instead combined with vegetable fibre the resistance to shrinkage is comparable with that of the reference normal ice cream. Therefore, the frozen confections of the present disclosure provide for a product that is spoonable at -18°C, but maintains its volume when subjected to serious heat shock conditions.

As mentioned above, the recipe used in sample 3 (the right-most picture below) includes as a stabilizer a combination of locust bean gum, guar gum and carrageenan. Locust bean gum in particular is also a source of fiber. Nevertheless, the product is not resistant to shrinkage. In other words, the present confections and methods for making same do not simply include replacing a fiber by any other fiber, as the Examiner seems to argue. Instead, Appellants have demonstrated surprising and unexpected results that are achieved by including the specific vegetable fibers disclosed in the present claims in a spoonable frozen confection comprising a polyol. Consequently, the skilled artisan viewing the cited references would have absolutely no reasonable expectation of success for an improvement in the stability of soft ice cream and of such a resistance shrinkage from harsh heat-shock conditions provided by the polyol and the vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof as described in Appellants' specification.

Appellants respectfully submit that the Examiner has failed to demonstrate with any specificity that the results described in Appellants' specification would have been expected. The Examiner has not shown that any of the facts stated in Appellants' specification are untrue. The Examiner has not provided any evidence that the cited references teach or suggest using a polyol and a vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof in a single aerated frozen confection to increase the resistance to shrinkage and layering. As a result, the Examiner has failed to rebut Appellants' evidence of unexpected results.

Because Appellants have shown that combining a polyol and a vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof in a single aerated frozen confection offers advantages by providing the aerated frozen confection with high resistance to shrinkage and layering, Appellants have shown that the claimed invention provides unexpected results over the prior art. Accordingly, the showing of unexpected results provides evidence that the claimed invention is not *prima facie* obvious in view of the cited references.

D. THE REJECTION OF CLAIMS 7-11 AND 13-16 UNDER 35 U.S.C. §103(A) TO *KAHN, HANSEN, DEA* AND *VAGHELA* SHOULD BE REVERSED BECAUSE THE EXAMINER HAS FAILED TO ESTABLISH A *PRIMA FACIE* CASE OF OBVIOUSNESS

1. *Kahn, Hansen, Dea* and *Vaghela* alone or in combination fail to disclose each and every element of independent Claims 7 and 11.

Independent Claims 7 and 11 recite, in part, an aerated frozen confection that is resistant to shrinkage and soft down to a storage temperature of -18 °C or less. Independent Claims 7 and 11 further recite, in part, an aerated frozen confection comprising a polyol and a vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof. In contrast, Applicants respectfully submit that the cited references are deficient with respect to the present claims.

Kahn, Hansen, Dea and *Vaghela* alone or in combination fail to disclose or suggest each and every element of independent Claims 7 and 11. Specifically, *Kahn, Hansen, Dea* and *Vaghela* alone or in combination fail to disclose or suggest an aerated frozen confection being resistant to shrinkage and soft down to a storage temperature of -18 °C or less as required by independent Claims 7 and 11. In addition, *Kahn, Hansen, Dea* and *Vaghela* alone or in combination fail to disclose or suggest a polyol and 0.5 to 7% by weight vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof in a single aerated frozen confection as required by independent Claims 7 and 11.

Kahn discloses a food product that maintains a stable volume when stored for prolonged periods at refrigerator temperatures as well as at freezer temperatures. See, *Kahn*, column 1, lines 37-41. Nowhere does *Kahn* even disclose the use of oat fibers or fibers extracted from chicory taproots for any purpose in his food product, especially in combination with a polyol for providing a beneficial effect to the food product at freezing temperatures. Moreover, *Kahn* fails to provide any measure of indication of the evolution of the volume of the food products over time, in particular when submitted to heat shocks.

Hansen discloses preparing a mixture of fructose, glucose and oligosaccharides for use as a filler bulking agent with a sweet taste. See, *Hansen*, Abstract. *Hansen* fails to disclose or suggest the use of any polyol, especially in combination with oat fibers or fibers extracted from

chicory taproots, in its mixture. Although ice creams are mentioned in a general laundry list of potential applications for using the mixture object of *Hansen*, soft ice cream is not mentioned. Indeed, the specific problems of spoonability and shrinkage in soft ice cream are not addressed by *Hansen*.

Dea discloses a spoonable frozen confection using a freezing point depressant like glycerol and containing a stabilizer. See, *Dea*, page 1, right column, paragraph 2. Nowhere does *Dea* even disclose the use of oat fibers or fibers extracted from chicory taproots for any purpose for the spoonable frozen confection, especially in combination with a polyol. In addition, the specific problem of shrinkage in soft ice cream is not addressed by *Dea*. This fails to address or solve the problem of the present claims, which is shrinkage of soft frozen confection. The problem is not even mentioned by *Dea*.

Vaghela discloses a process for the production of aerated frozen products by preparing a mixture of ingredients suitable for a frozen aerated product, adding an emulsifier mixture, aerating the mix to obtain an aerated mix having an overrun of about 20 % to about 250 %, and about 5 % to about 100 % for the aerated frozen ice cream and water ice, respectively, and freezing the aerated mix to produce the aerated ice cream or water ice. The emulsifier blend contains a mixture of propylene glycol monostearate, sorbitan tristearate, and unsaturated monoglycerides. Nevertheless, *Vaghela* fails to disclose or suggest oat fibers or fibers extracted from chicory taproots for any purpose for the aerated frozen products, especially in combination with a polyol.

For at least the reasons discussed above, *Kahn*, *Hansen, Dea* and *Vaghela* fail to teach or suggest each and every element of independent Claims 7 and 11, along with any of the claims that depend from Claims 7 and 11. Moreover, *Kahn*, *Hansen, Dea* and *Vaghela* fail to teach, suggest or even recognize the advantages and benefits of using a vegetable fiber and a polyol to provide an improved aerated frozen confection in accordance with the present claims.

2. The skilled artisan would have no reason to combine the cited references to arrive at the claimed invention because the cited references teach away from each other.

Appellants respectfully submit that the skilled artisan would have no reason to combine the cited references in an attempt to arrive at the claimed invention because they teach away

from each other. References must be considered as a whole and those portions teaching against or away from the claimed invention must be considered.

Kahn discloses whipped products that are soft and spoonable like soft ice-cream at 0 °F. The products (whipped milk shake or ice cream) can also be stored at refrigerator temperatures of about 32 °F to about 42 °F for several days and then consumed with a straw. The whipped products disclosed contain non-fat milk solids, water, sugar, fat and minor effective amounts of flavoring, emulsifier and stabilizers including a polysaccharide stabilizer. *Kahn* teaches that part of the sugar component is preferably replaced by a polyhydric alcohol (e.g., glycerol) to decrease the sweetness of the whipped products and help it become quickly flowable when exposed to ambient temperatures. See, *Kahn*, column 2. Stabilizer components include polysaccharide stabilizers, preferably CMC in combination with carrageenan. See, *Kahn*, column 4. Gums are also described as possible stabilizers.

Kahn is silent about the use of vegetable fibers consisting of oat fibers, fibers extracted from chicory taproots and combination thereof. The Examiner states that it would have been obvious to one ordinary skill in the art at the time of the invention to modify *Kahn* in view of *Hansen* and include a chicory based oligosaccharide as a stabilizer in the whipped products of *Kahn*. Appellants respectfully disagree.

Hansen discloses the preparation of a mixture of fructose, glucose and oligosaccharides from roots of chicory and their use as a filler bulking agent with a sweet taste. More particularly, *Hansen* discloses the use of the mixture in products where a large amount of sweetener is desirable with regard to body and texture. Appellants respectfully submit that the described mixture is not said to be useful as a stabilizer. Therefore, a skilled person in the art viewing *Kahn* and looking for an alternative stabilizer than those described in *Kahn* would have absolutely no reason to believe that the mixture described by *Hansen* could be used to replace the stabilizers described by *Kahn*.

According to *Kahn*, the use of a polyhydric alcohol is recommended to replace part of the sugar content in order to achieve a desirable reduction in the sweetness of *Kahn's* whipped products. See, *Kahn*, column 6, line 63. In other words, the skilled artisan viewing *Kahn* and looking to reduce the sweetness of its whipped product would have no reason at all and be even taught away from using the mixture disclosed by *Hansen*, which has a sweetening effect and no described stabilizing effect. Further, the skilled artisan confronted with the problem of

improving the stability of the whipped products described by *Kahn* would have absolutely no reason to replace the stabilizers described by *Kahn*, namely polysaccharides, with a filler bulking agent having a sweet taste as taught by *Hansen*. As such, a skilled person in the art would have no reason to look at the teaching of *Hansen* when trying to solve a problem of shrinkage in soft ice cream. Additionally, even if the skilled artisan were tempted to do so, he would have no reasonable expectation to achieve the results of resistance of shrinkage of the present claims.

What the Examiner has done is to rely on hindsight reconstruction of the claimed invention. Appellants respectfully submit that it is only with a hindsight reconstruction of Appellants' claimed invention that the Examiner is able to even attempt to piece together the teachings of the prior art so that the claimed invention is allegedly rendered obvious. Instead, the claims must be viewed as a whole as defined by the claimed invention and not dissected into discrete elements to be analyzed in isolation. *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983); *In re Ochiai*, 71 F.3d 1565, 1572, 37 USPQ2d 1127, 1133 (Fed. Cir. 1995). One should not use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d at 1075. (Fed. Cir. 1988).

3. The Examiner has failed to rebut Appellant's evidence of unexpected result

"One way for a patent applicant to rebut a prima facie case of obviousness is to make a showing of 'unexpected results,' i.e., to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected." *In re Soni*, 54 F.3d 746, 750 (Fed. Cir. 1995). Appellants have surprisingly found that combining a polyol and a vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof in a single aerated frozen confection provides the aerated confection with high resistance to shrinkage and layering.

More specifically, Applicants have surprisingly found a way to provide increased stabilization of soft serve ice cream type of products for home use with high resistance to shrinkage and layering. For example, Applicants surprisingly found that a polyol (e.g., glycerol) in combination with vegetable fibers selected from the group consisting of oat fibers, fibers

extracted from chicory taproots and combinations thereof have a strong effect on preventing shrinkage and ice layering in aerated frozen confections. See specification, Examples.

Appellants have found that the specific selection of vegetable fiber, associated with the presence of a polyol, has a strong effect in preventing shrinkage and ice layering of soft ice cream. As defined in the specification, shrinkage is the partial or total loss of the air incorporated in the ice cream. See, specification, page 4, lines 25-34. Shrinkage typically occurs during ice cream storage, in particular when the ice cream is exposed to high temperature and/or temperature oscillation. Due to shrinkage the ice cream volume is reduced, the shape can also be affected and, over determinate level of shrinkage, the products become unmarketable. A good resistance to shrinkage is therefore one of the key properties of the ice cream. See, specification, page 4, lines 25-34.

The capability of different products to keep their volumes over commercial shelf-life (that means to resist shrinkage) can be compared by application of accelerated heat shock cycles to be run in thermostatic chambers. For example, the shrinkage sensitivity of products according to the present claims have been measured with a very specific heat shock cycle described in the application in the specification at page 5, lines 1-7. The test included 18 phases of temperature changes between -20°C and -4°C. As the test is comparative, the cycle was repeated, with a loop from phase 18 to phase 1, until one of the involved samples started to shrink. With this procedure 1 cycle means 1 repetition of phase 1 to 18 (approx. 70 hours). The products of the present disclosure described in Table 1 (Examples 1 to 4) were subjected to 4 cycles of heat shock and showed no apparent shrinkage – comparable to a regular ice cream.

Further, in the following table, the pictures of three different ice cream compositions after 4 cycles of heat shock are shown. The left-most picture is a reference ice cream having (i) a stabilizer system including locust bean gum, guar gum and carrageenan. The reference ice cream was not spoonable at -18°C, but was resistant to shrinkage (no volume loss) after heat shock. The right-most picture is an ice cream having (i) a stabilizer system including locust bean gum, guar gum and carrageenan, and (ii) a polyol (i.e., glycerol). The ice cream with the polyol was spoonable at -18°C, but suffered from severe shrinkage when submitted to heat shock cycle. The center picture is an ice cream having (i) a stabilizer system including locust bean gum, guar gum and carrageenan, (ii) a polyol (i.e., glycerol), and (iii) a vegetable fiber from chicory taproots according to the claimed invention. The ice cream with the polyol and the vegetable fiber was

spoonable at -18°C and did not suffer from shrinkage such that the ice cream maintained its volume even after heat shock cycle. It is evident that the ice cream where polyols were added to increase softness has lost volume and shows an unacceptable shrinkage; while the normal, reference ice cream still keeps its volume. When polyols are instead combined with vegetable fibre the resistance to shrinkage is comparable with that of the reference normal ice cream. Therefore, the frozen confections of the present disclosure provide for a product that is spoonable at -18°C, but maintains its volume when subjected to serious heat shock conditions.

As mentioned above, the recipe used in sample 3 (the right-most picture below) includes as a stabilizer a combination of locust bean gum, guar gum and carrageenan. Locust bean gum in particular is also a source of fiber. Nevertheless, the product is not resistant to shrinkage. In other words, the present confections and methods for making same do not simply include replacing a fiber by any other fiber, as the Examiner seems to argue. Instead, Appellants have demonstrated surprising and unexpected results that are achieved by including the specific vegetable fibers disclosed in the present claims in a spoonable frozen confection comprising a polyol. Consequently, the skilled artisan viewing the cited references would have absolutely no reasonable expectation of success for an improvement in the stability of soft ice cream and of such a resistance shrinkage from harsh heat-shock conditions provided by the polyol and the vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof as described in Appellants' specification.

Appellants respectfully submit that the Examiner has failed to demonstrate with any specificity that the results described in Appellants' specification would have been expected. The Examiner has not shown that any of the facts stated in Appellants' specification are untrue. The Examiner has not provided any evidence that the cited references teach or suggest using a polyol and a vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof in a single aerated frozen confection to increase the resistance to shrinkage and layering. As a result, the Examiner has failed to rebut Appellants' evidence of unexpected results.

Because Appellants have shown that combining a polyol and a vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof in a single aerated frozen confection offers advantages by providing the aerated frozen confection with high resistance to shrinkage and layering, Appellants have shown that the claimed invention provides unexpected results over the prior art. Accordingly, the showing of unexpected results provides evidence that the claimed invention is not *prima facie* obvious in view of the cited references.

VIII. CONCLUSION

Appellants respectfully submit that the Examiner has failed to establish obviousness under 35 U.S.C. §103 with respect to the rejections of Claims 1-17. Accordingly, Appellants respectfully submit that the obviousness rejections are erroneous in law and in fact and should therefore be reversed by this Board.

A check in the amount of $510 is submitted herewith to cover the cost of the Appeal Brief. The Director is authorized to charge any additional fees that may be required, or to credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 3712036-750 on the account statement.

Respectfully submitted,

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Dated: February 7, 2012

CLAIMS APPENDIX

PENDING CLAIMS ON APPEAL OF U.S. PATENT APPLICATION SERIAL NO. 10/598,444

1. An aerated frozen confection comprising:

50 to 70% by weight water,

5 to 20% by weight fat,

1% by weight or more polyol,

0.5 to 7% by weight vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof, and

sugars, milk proteins, hydrocolloids and emulsifiers and the confection having an overrun of 20 to 200%, the aerated frozen confection being resistant to shrinkage and soft down to a storage temperature of -18 °C or less.

2. The aerated frozen confection according to claim 1, comprising 2 to 8% by weight proteins derived from milk.

3. The aerated frozen confection according to claim 1, wherein the polyol is glycerol.

4. The aerated frozen confection according to claim 3, wherein the level of glycerol is 1 to 5% by weight.

5. The aerated frozen confection according to claim 1, wherein the vegetable fibers are oligosaccharides derived from chicory, at a level of 2 to 4% by weight.

6. The aerated frozen confection according to claim 1, wherein the confection has an overrun of 90 to 160%.

7. A method for producing an aerated frozen confection, the method comprising:

premixing vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof, and adding the mixture to an agitated mixing tank along with fat, polyol, sugar, milk, protein, hydrocolloids, and emulsifiers,

subjecting the mix to a heating step to hydrate the hydrocolloids,

pasteurizing the heated mix,

homogenizing the pasteurized mix,

cooling, ageing and freezing the mix whist aerating, and

packaging and hardening the mix to produce the aerated frozen confection, the aerated frozen confection being resistant to shrinkage and soft down to a storage temperature of -18 °C or less.

8. The method according to claim 7, wherein the pasteurizing step is carried out during about 24 to 30 seconds at about 90 °C to 80 °C.

9. The method according to claim 7, wherein the homogenizing step is carried out at about 70 °C at a pressure of about 120 to 160 bar.

10. The method according to claim 7, wherein the freezing step is carried out in a scraped surface freezer at a draw temperature of -5 to -10 °C.

11. A method of producing confection products, the method comprising:

using a vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof, in combination with a polyol to produce an ice confection that contains 5 to 20% by weight fat, the ice confection being resistant to shrinkage and soft down to a storage temperature of -18 °C or less.

12. An aerated frozen confection comprising:

50 to 70% by weight water,

5 to 20% by weight fat,

at least 1% or more glycerol,

0.5 to 7% by weight vegetable fiber selected from the group consisting of oat fibers, fibers extracted from chicory taproots and combinations thereof, and

sugars, milk proteins, hydrocolloids and emulsifiers, the aerated frozen confection being resistant to shrinkage and soft down to a storage temperature of -18 °C or less.

13. The method according to claim 7, wherein the polyol is glycerol.

14. The method according to claim 13, wherein the level of glycerol is 1 to 5% by weight.

15. The method according to claim 11, wherein the polyol is glycerol.

16. The method according to claim 15, wherein the level of glycerol is 1 to 5% by weight.

17. The aerated frozen confection according to claim 12, wherein the level of glycerol is 1 to 5% by weight.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None